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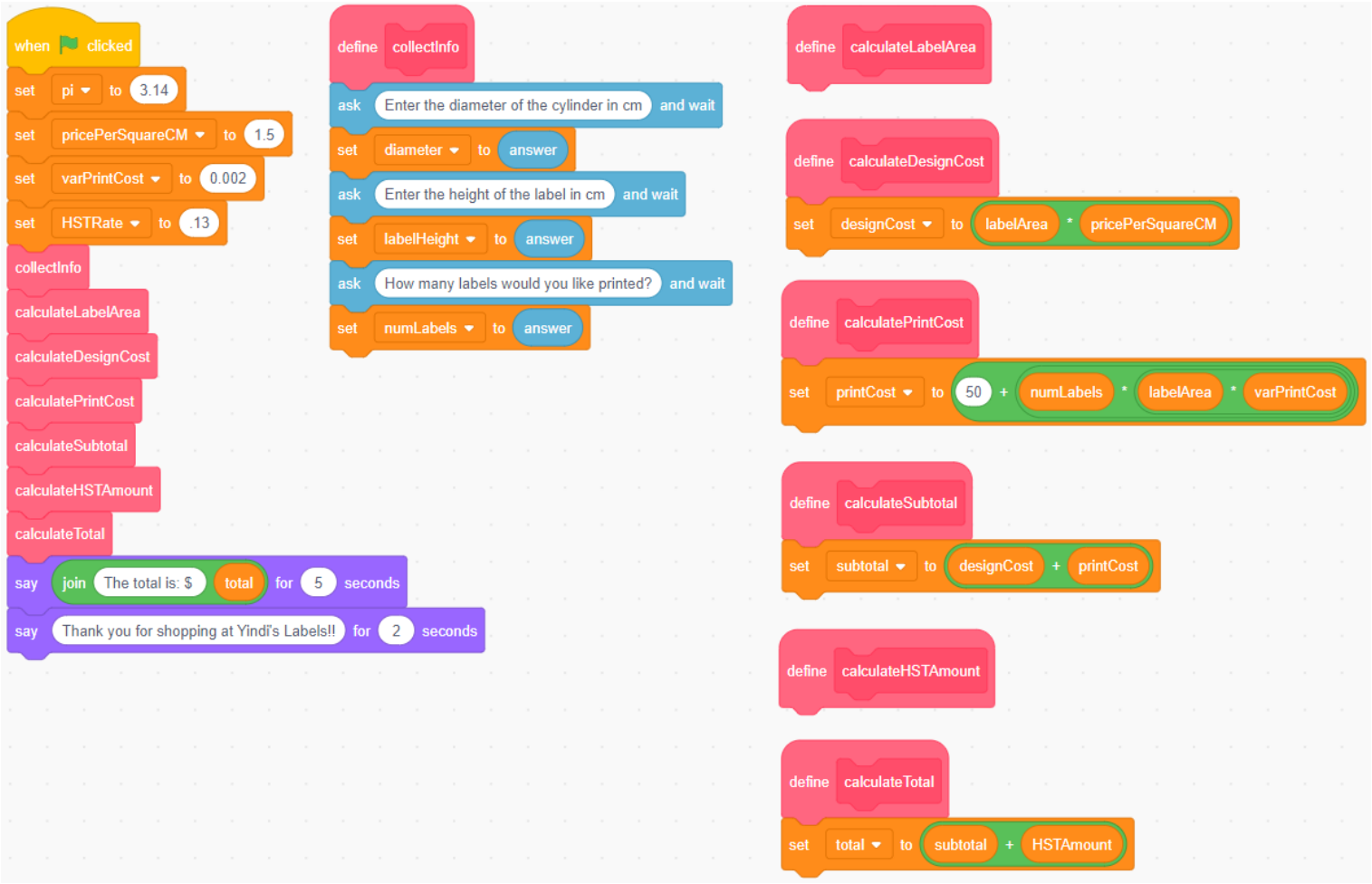
Yindi's Labels—Online Order Form

Here is a link to the partially completed Scratch application Yindi created for her clients.
https://scratch.mit.edu/projects/718912470/editor/

Remember: You must be logged in to save your work in your Scratch account.

The code is shown below:



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Yindi's Labels—Online Order Form (cont'd)

1. What 3 pieces of information is the user asked to enter?

2. Once the code has been completed, what 5 pieces of information will the application calculate and display?

Here is a sample of what will appear on the stage after the code is completed and a client has entered their data:

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Yindi's Labels—Online Order Form (cont'd)

Pseudocode has also been partially written for this application:

```
subprogram collectInfo
   output "Enter the diameter of the cylinder in cm"
   store user input as diameter
   output "Enter the height of the label in cm"
   store user input as labelHeight
   output "Enter the number of labels you would like
   printed"
   store user input as numLabels

subprogram calculateLabelArea
     labelArea =  pi * diameter * labelHeight

subprogram calculateDesignCost
     designCost =  labelArea * pricePerSquareCM

subprogram calculatePrintCost
     printCost = 50 + numLabels * labelArea * varPrintCost

subprogram calculateSubtotal
     #complete this

subprogram calculateHSTAmount
     HSTAmount = HSTrate * subtotal
     display HSTAmount

subprogram calculateTotal
     #complete this

#Main program
pi = 3.14
pricePerSquareCM = 1.50
varPrintCost = 0.001
     run subprogram collectInfo
     run subprogram calculateLabelArea
     run subprogram calculateDesignCost
```

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Yindi's Labels—Online Order Form
(cont'd)

```
    run subprogram calculatePrintCost
    run subprogram calculateSubtotal
    run subprogram calculateHSTAmount
    run subprogram calculateTotal

output "The total is: $", total
```

3. Identify the following data used in the application:
   a) What does the **pricePerSquareCM** variable represent? What is the value of this variable when the program opens?
   b) What does the **varPrintCost** variable represent? What is the value of this variable when the program opens?

4. Complete the Scratch application by:
   a) Writing the code for the **calculateLabelArea** subprogram
   b) Writing the code for the **calculateHSTAmount** subprogram

5. Complete the pseudocode by:
   a) Writing the pseudocode for the **calculateSubtotal**
   b) Writing the pseudocode for the **calculateTotal** application

Hints:

- Use the partially completed pseudocode to help you complete the code in Scratch.
- Use several multiplier operators inserted into one another to calculate the area of the label.

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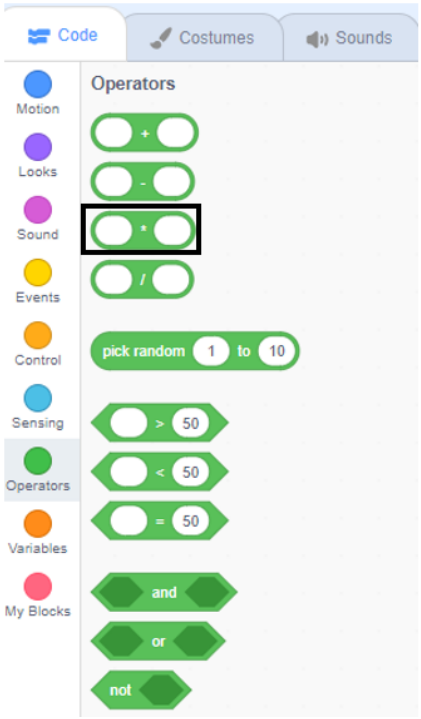
Yindi's Labels—Online Order Form
(cont'd)



- Use the partially completed Scratch application to help you complete the pseudocode.

Extensions:

- Provide different **varPrintCost** rates for the labels based on bulk purchases.
  For example, if the user orders 500 to 999 labels, they get a reduced rate.
  If they order at least 1000 labels, they get an even greater reduction.
  Hint: **Conditional Statements** would work for this.
- Alter the code to ensure the variables that represent the subtotal, HSTAmount, and total only contain two decimal places.
  This is trickier than it sounds!